

1
2
3
4
CLAIMS

5 I claim:

6 A system for providing visual orientation information to a user, comprising:
7 orientation sensing means for providing positional change information of a user with
8 respect to a baseline position;
9 data acquisition means to acquire said positional change information and said baseline
10 position from said orientation sensing means;
11 data processing means for determination of a relative positional change of said user from
12 said baseline position, based upon said positional change information and said baseline position
13 acquired by said data acquisition means; and
14 display means for presenting to said user a set of visual cues indicative of said relative
15 positional change.

16 2. The system of Claim 1 wherein said orientation sensing means comprises an accelerometer.

17

18 3. The system of Claim 1 wherein said orientation sensing means comprises a magnetostrictive sensor.

19

20 4. The system of Claim 1 wherein said orientation sensing means comprises a gyroscope.

21

22 5. The system of Claim 1 wherein said orientation sensing means is worn by said user on a band
23 affixed to the head of said user.

24

25 6. The system of Claim 1 wherein said display means is affixed to a pair of eye glasses.

26

1 7. The system of Claim 1 wherein said display means comprises a liquid crystal display.

2

3 8. The system of Claim 1 wherein said display means comprises a retinal scanner.

4

5 9. The system of Claim 1 wherein said display means comprises the projection of a series of averaged

6 video images acquired by a camera.

7

8 10. The system of Claim 1 wherein said display means comprises a holographic projection.

9

10 11. The system of Claim 1 wherein said visual cues comprise pitch information.

11 12. The system of Claim 1 wherein said visual cues comprise roll information.

12 13. The system of Claim 1 wherein said visual cues comprise yaw information.

13 14. The system of Claim 1 wherein said visual cues comprise elevation information.

14 15. A method of providing physical orientation information to a user comprising the following steps:

15 a. first sensing a baseline position of said user;

16 b. second sensing a positional change from said baseline position;

17 c. computing a relative amount of said positional change from said base line position; and

18 d. presenting said relative amount of said positional change as a series of visual cues to
19 said user.

20

21 16. The system of Claim 15 wherein said sensing steps comprise the use of an accelerometer.

1 17. The method of Claim 15 wherein said sensing steps comprise the use of a magnetostrictive sensor.

2

3 18. The method of Claim 15 wherein said sensing steps comprise the use of a gyroscope.

4

5 19. The method of Claim 15 wherein said presenting step comprises providing non-orientation
6 information to said user.

7

8 20. The method of Claim 15 wherein said second sensing step comprises sensing a change in said
9 user's pitch.

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

21. The method of Claim 15 wherein said second sensing step comprises sensing a change in said
user's roll.

22. The method of Claim 15 wherein said second sensing step comprises sensing a change in said
user's yaw.

23. The method of Claim 15 wherein said second sensing step comprises sensing a change in said
user's elevation.

24. The system of Claim 15 wherein said presenting step comprises provision of a holographic image
to said user.

1 26. The method of Claim 15 wherein said second sensing step is repeated a multiplicity of times, and
2 wherein said computing step comprises the determination of an average of a set of positional change data
3 acquired during the repetition of said second sensing steps.

4

5 27. The method of Claim 26 wherein said repetition of said second sensing step occurs at a rate of
6 more than 10 times per second.

7

8 28. The method of Claim 15 wherein said presenting step occurs at a rate of more than 6 times per
9 second.

10

11 29. The method of Claim 15 further including the continuous repetition of steps b, c and d.

12

13

14

15

16

17

18

19

1 A system for providing visual orientation information to a user, comprising:
2 orientation sensing means for providing positional change information of an object with
3 respect to a baseline position;
4 data acquisition means to acquire said positional change information and said baseline
5 position from said orientation sensing means;
6 data processing means for determination of a relative positional change of said object from
7 said baseline position, based upon said positional change information and said baseline position
8 acquired by said data acquisition means; and
9 display means for presenting to said user a set of visual cues indicative of said relative
10 positional change.